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EXAMINER

SPOONER, LAMONT M

ART UNIT	PAPER NUMBER
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2654

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/437,971

Applicant(s)

CHEN ET AL.

Examiner

Lamont M. Spooner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments, see Remarks, filed 11/08/04, with respect to claims 21-29 have been fully considered and are persuasive. The rejections of claims 21-29 have been withdrawn.

Applicant's arguments filed 11/08/04 regarding claims 1-20 have been fully considered but they are not persuasive.

Regarding applicant's arguments, page 4, para. 4, concerning claims 1 and similar claims 19 and 20-having similar features, "...if Yamada were combined with Ellozy, syllables are not indexed and stored for use in searching a database in response to a user query in the combination."

However, Yamada teaches indexing a Chinese/Japanese index based on syllable, which is a minimal unit of language (c.4.45-c.5.9-previously cited in previous action). The applicant claims "...semantic units for **use** in searching ..." Yamada teaches, C.7.14, 15, "an index indicator that provides an index for assisting a search for a desired data item. Therefore, the Examiner interprets the indexed syllables as being used in searching, which meets the limitations as claimed and thus the previous rejection remains valid.

Regarding applicant's arguments concerning claims 8, and 9. The applicant's alleged deficiencies with respect to claim 1 have been clarified above. The applicant states, "Orsolini does not index and search based on semantic units, but rather the user chooses a keyword . . . (which is then) used to query the text balanced tree for each

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recording" (col. 5, lines 28-43)." However, the Examiner does not rely on Orsolini for the defined semantic units, rather as previously cited in the previous action,

"processing the user query to generate one or more semantic units representing the information that the user seek to retrieve"; col. 1, line 65 to col. 2, line 9, the user choose a keyword and used to query the text balanced tree for each recording, col. 5, lines 28-43).

searching the one or more indexed semantic units to find a substantial match with the one or more semantic units associated with the user query; (col. 2, lines 3-9., col. 5, lines 45-55); and

retrieving one or more segments of the audio-based data using the one or more indexed semantic units that match the one or more semantic units associated with the user query" ( col. 2, lines 10-24, col. 5, lines 45-61)."

Therefore, the Examiner relies on Orsolini's searching system as taught by Orsolini et al because it would provide efficient content searching of recordings. As per claim 9, Orsolini et al teach wherein the searching step further comprises presenting the retrieved data to the user (col. 5, lines 45-48).

Regarding applicant's arguments concerning claim 14, page 5 para. 3, the Examiner has provided a citation of the limitation below.

### ***Specification***

2. The disclosure is objected to because of the following informalities:

On page 8, line 12, after "aud5," "aud6" should be - - aud7- -.

On page 8, line 13, "6<sup>th</sup>" should be - - 7<sup>th</sup> - -. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 19 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claim recites, "at least one processor..." but lacks means for performing the various operations that the processor performs.

A single means claim, i.e., where a means recitation does not appear in combination with another recited element of means, is subject to an undue breadth rejection under 35U.S.C. 112, first paragraph. In re Hyatt, 708 F.2d 712, 714-715, 218 USPQ 195, 197(Fed. Cir. 1983) (A single means claim which covered every conceivable means for achieving the stated purpose was held nonenabling for the scope of the claim because the specification disclosed at most only those means known to the inventor.). When claims depend on a recited property, a fact situation comparable

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to Hyatt is possible, where the claim covers every conceivable structure (means) for achieving the stated property (result) while the specification discloses at most only those known to the inventor.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-13, and 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellozy et al (Ellozy US 5,649,06) in view of Yamada (US 6,166,733).

As per claim 1 and 19-20, Ellozy et al teach a method of processing audio-based data associated with particular language, the method comprising (figure 3):

“Storing the audio-based data” (his Audio/Video recording 12, col. 5, lines 5-20),.

“Generating a textual representation of the audio-based data the textual representation being in the form of one or more semantic units corresponding to the audio-based data” (his Automatic Speech Recognizer 31 and his Decoded Text 38,. col. 5, lines 30-35),. and

“indexing the one or more semantic units and storing the one or more indexed semantic units for use in searching the stored audio-based data in response to a user query” (his indexing 60, co1.7, lines 13-20).

It is noted that Ellozy teaches the claimed invention but does not explicitly teach wherein a semantic unit comprises a minimal unit of language having a semantic

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meaning. However, this feature is well known in the art as evidenced by Yamada who teaches at col. 4, lines 45 to col. 5, lines 9, indexing a Chinese/Japanese index based on syllable which is a minimal unit of language, Yamada teaches, C.7.14, 15, "an index indicator that provides an index for assisting a search for a desired data item. Therefore, the Examiner interprets the indexed syllables as being used in searching. Therefore, one having ordinary skill in the art at the time the invention was made would have it obvious to recognize that the keyword/keyphrase based indexing of Ellozy could be further indexed based on syllable as taught by Yamada because it would facilitate the sorting and would save space in the memory allocation.

As per claim 5, Ellozy et al teach wherein the generating step comprises decoding the audio-based data in accordance with a speech recognition (figure 3, his automatic Speech Recognizer 34, col. 5, line 30-32).

As per claim 6, Ellozy teach wherein the speech recognition system employs a semantic unit based language model (col. 6, lines 47-65, his word language model).

As per claim 7, Ellozy teach "wherein the indexing step comprises time stamping the one or more semantic units" (col. 5, lines 47 to \*1. 6, line 30; his time stamping of the indexed words).

As per claim 15, Ellozy teach "wherein the one or more semantic units are indexed according to at least one of when the audio based was produced and where the audio based data was produced" (figure 3, his time alignment 42).

As per claim 23, Ellozy teaches "the user query comprises a word" (C.2.line 40 target recognized word).

As per claim 27, Ellozy teaches "the generating step comprises producing the textual representation via stenography" (C.1.lines 43-48, C.5.lines 14, 15).

As per claim 28, Ellozy teaches "the searching step (C.2.lines 39, 48-the searching) comprises use of a hierarchical index (C.3.lines 54-56-ordered series of index-hierarchical index).

As per claim 29, Ellozy teaches "the searching step comprises use of an automatic boundary marking system (Fig. 5, C.10.lines 10-31-the time stamp automatically sets boundaries used in searching).

As per claims 2-4 Yamada teaches "wherein the semantic unit is a syllable, wherein the syllable is a phonetically based syllable"; and wherein the semantic unit is a morpheme ( col. 4, lines 45 to \*1. 5, lines 9).

Therefore, it would have been obvious to modify Ellozy with Yamada by including indexed syllables used in the searching. The motivation for doing so would have been to facilitate faster searching (c.2.lines 55-57).

As per claim 21, Yamada teaches "employing a syllable language model" (c.4.lines 20-24). Therefore, it would have been obvious to modify Ellozy with Yamada by having the speech recognition system of Ellozy employ the syllable language model of Yamada in place of Ellozy's language model. The motivation for doing so would have been to facilitate faster searching (c.2.lines 55-57).

7. Claims 21, 22, and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellozy et al (Ellozy US 5,649,06) in view of Yamada (US 6,166,733), and further in view of Lee (US 5,220,639).



As per claim 21, Ellozy in view of Yamada do not teach transcribing audio data to generate syllables, deriving conditional probabilities of distribution based on the generated syllables, and using syllable counts and the conditional probabilities to construct the syllable language model.

However, Lee teaches transcribing audio data to generate syllables (Fig. 1-input speech-output-is the transcription), deriving conditional probabilities of distribution based on the generated syllables, and using syllable counts and the conditional probabilities to construct the syllable language model (Fig. 1-input speech, Fig. 2-HMM, Initial/transitional/observational probabilities interpreted as the conditional probabilities of distribution based on the generated syllables, C.3.lines 25-27-character syllables, C.7.line 27-C.8.line 6-count occurrence frequencies characters/syllables, Markov Model Chinese Language Model-the counts and probabilities are used in the construction of the syllable language model. Therefore, it would have been obvious to modify Ellozy and Yamada with Lee by producing a syllabic language model of Yamada in the well known manner of Lee. The motivation for doing so would have been to correctly transcribe input speech (C.2.lines 3-6).

As per claim 25, Lee further teaches a phonetically-based syllable comprises a toneme (C.4.lines 33-35, 39,40-tone, syllable).

As per claim 26, Lee further teaches two or more different pronunciations are associated with a phonetically-based syllable (C.4.lines 31-37-the multiple pronunciations "ba-1, ba-2" are associated with a phonetically-based syllable reducing the 1300 to 400-phonetically-based syllables).

As per claim 24, Ellozy and Yamada do not explicitly the searching step further comprises transforming the word into a sequence of syllables using a text-to-phonetic syllable map. However, Lee further teaches "transforming a word into a sequence of syllables using a text-to-phonetic syllable map" (C.7.lines 43-46-computer is transformed to a sequence of syllables, from text-to-phonetic syllables-necessarily comprising a map). Therefore, it would have been obvious to modify Ellozy's search method by transforming the query word into syllables. The motivation for doing so would have been to have a syllabic description of an input word, for use in searching which enhances the speed in searching (Yamada C.4.lines 45-53).

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lamont M. Spooner whose telephone number is 571/272-7613. The examiner can normally be reached on 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 571/272-7602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**RICHEMOND DORVIL**  
SUPERVISORY PATENT EXAMINER

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6/5/05